

UNIVERSITY OF AKRON
Bierce Library
302 E. Buchtel Ave.
Akron 4, Ohio

TA1257
P293

VS&T
data

GOVERNMENT RESEARCH AND DEVELOPMENT DATA



U.S. ARMY
SIGNAL SUPPORT AGENCY



THE UNIVERSITY OF AKRON
LIBRARY
AKRON 4, OHIO

RECEPTION ROOM
SMALL BUSINESS
OFFICE
CONTRACTOR
RELATIONS
DISPLAY

TUC

IN

SEPTEMBER 1958

SPECIAL REPORT
U.S. ARMY SIGNAL CORPS



editorial

Both the U.S. Army Signal Corps and I are proud of this Signal Corps issue for a number of reasons: (1) It is a good issue—I think our best effort to date. (2) It tells an important story—the Army Signal Corps is a key activity in electronics R&D. (3) It does a good job for the reader—there is a lot of useable meat in the pages that follow . . .

The Signal Corps so welcomed the opportunity to tell its story that public information officer Ted Di Renzo of U.S. Army Signal Supply Agency in Philadelphia was assigned temporarily to our office in Washington. Ted pitched in with both hands, and the Office of the Chief Signal Officer in the Pentagon also gave us terrific backing. With cooperation like that you really enjoy the assignment.

Let me give you a brief history of that assignment—With The Pentagon telephoning ahead of me, I drove to Fort Monmouth, SigCor R&D Labs. Staying overnight at the BOQ, I went to the Hexagon (SigCor R&D admin bldg) next morning. I cornered a project officer and a parts rep for an interview, and, after a tour of the facilities, I talked to the main procurement officer, visited the bid room, and talked to more contractors. Information officers briefed me and gave me the personnel locator charts of Signal Corps R&D which we have made available to you on the inside back cover.

Back at The Pentagon I met with General Cook, SigCor Chief for R&D, an officer very interested in contractors.

Another day was spent at the US Army Signal Supply Agency in Philadelphia. Here I met Colonel Littell, Commanding Officer of the USASSA, who is extremely interested in working closely with manufacturers. He says he likes to meet the contractors and encourages them to visit the Philadelphia activity.

. . . By the way, this issue is our Second Anniversary edition and marks DATA's second year in commercial publication. For all of you who have been subscribers since the first mimeographed attempt, and to all our new subscribers, I want to say thanks for your support and happy contracting!

Murray Smith

EDITOR DATA

What makes the

Micropoise Relay

Really New?



PAT. PENDING

**A NEW MAGNETIC CONCEPT
CREATES A NEW RELAY WITH**

OUTSTANDING IMPROVEMENTS

1. **Vibration** (100 to 2000 CPS at 15g)
2. **Reduced weight** (40% weight saving)
3. **Reduced size** ($\frac{1}{2}$ the cube of competitive designs)
4. **Withstands impact** (100g -- 11 ± 2 milliseconds) making this new MICROPOISE RELAY ideal for missile programs, the ever increasing more exacting aircraft control requirements, and for highly reliable electronic computer applications.



A DIVISION OF

Cook Electric Company

2700 Southport Ave., Chicago 14, Illinois

Diaphlex—Aircraft Components and Accessories. Cook Research Laboratories—Basic & Applied Research. Inland Testing Laboratories—Qualification, Environmental, Reliability and Radiation Testing. Magnilastic—Expansion Joints and Large Scale Metal Fabrications. Wirecom—Wire Communication Protection & Distribution Equipment. Electronics Systems Division—Engineering and Production of Electronic Gear. Airmod Corporation—Modernization, Modification, and Maintenance of Aircraft. Nucleodyne Corporation—Engineering and Design of Technological Facilities. Cinefonics Inc.—Motion Picture Production. Canadian Diaphlex, Ltd.—Aircraft Components and Accessories.

Mention you saw it in DATA

... keep up to date

with

data
magazine

Volume 3

Number 9

Published monthly
by Queensmith Associates, Inc.

Editor & Publisher: MURRAY QUEEN SMITH

Associate Editor: ROBERT KAHN

Advertising Art: TED WILBUR

Magazine Layout: BARBARA DODD

IN THIS ISSUE:

Briefings	4
U. S. Army Signal Corps Procurement at a Glance	5
Message from CO U. S. Army Signal Corps Supply Agency	7
U. S. Army Signal Corps Regional Offices	8
Message from U. S. Army Signal Corps Chief of Research & Development	10
U. S. Army Signal Corps Mission, Areas, Funding	11
U. S. Army Signal Corps Clearance for Publicity	12
Operational Requirements	13
Who's Who in the U. S. Army Signal Corps in Washington, D. C., Ft. Monmouth, Philadelphia	14
Recent Signal Corps Developments	16
Categorical Section	18
Soviet R & D	29
Datagraph Reader Service Items	31

SUBSCRIPTION RATES: U.S. — \$12.00 for 1 year; \$22.00 for 2 years. Foreign — \$15.00 for 1 year; \$28.00 for 2 years. Available to Government personnel through Federal Supply Schedule, FSS Stock Requisition Number 7630-148, Index No. 1256, FSS Section 76, Page 90. Checks may be made payable to DATA.

DATA Magazine is published monthly. DATAGRAM supplemental newsletters published as needed. Second-class mailing privileges authorized at Washington, D. C.

DATA PUBLICATIONS

1346 Connecticut Ave., N.W., Washington 6, D. C.

• Title registered United States Patent Office

U.S. ARMY SIGNAL CORPS



SPECIAL MESSAGE TO DATA READERS:

The U.S. Army Signal Corps serves major missions in communications and electronics. Our scope of interest spans a wide field of business and industry production capabilities. You will read some of our principal interests on the following pages of this special DATA edition covering our research and development and procurement structure.

New products of all kinds are needed and wanted. Contractor opportunities exist for both the producers of materials and parts as well as those who make end systems or equipment. We are constantly seeking new developments, concepts or applications. Contractors are invited to tell the Army Signal Corps what they have and can do.

American superiority in communications and electronics rests on the things the Industry-Scientific-Military team can do and produce. It is our purpose to help that teamwork through the information for contractors on Army Signal Corps research and development interests and procurement relationships.

We are glad to have this means to acquaint the readers of DATA in other Government services as well as industry with our communications and electronics work.

J. D. O'Connell
J. D. O'CONNELL
Lieutenant General, U.S.A.
Chief Signal Officer

James Dunne O'Connell was born in Chicago, Ill., on September 25, 1899. He was graduated from the United States Military Academy and commissioned a second lieutenant on June 13, 1922.

From November 1950 to August 1951, General O'Connell served as Signal Officer, Second Army, Fort George G. Meade, Md. Following this tour of duty, he was assigned to the Office of the Chief Signal Officer in Washington, D. C.

In December 1951, General O'Connell was named Deputy Chief Signal Officer, a post he held until 1 May 1955 when he became the seventeenth Chief Signal Officer of the U.S. Army. He was recently promoted to Lt. General.

BRIEFINGS

ARMY AWARDS \$135,000,000 CONTRACT TO WESTERN ELECTRIC

for R&D work on NIKE ZEUS anti-missile missile system. Contractor team consists of Western Electric, Bell Telephone, Douglas Aircraft as primes. Some of major subs include: Goodyear, Remington Rand, Sperry Rand, Sperry Gyroscope, RCA, North American Aviation, Lear, Burns & Roe, Continental Can. ///Army info/

REVISED PROCUREMENT REG ON PROPRIETARY DATA

scheduled for publication on or about 15 Oct. Revision included changes intended to facilitate making contracts which require technical data.

Revision No. 38 to Armed Services Procurement Regulation will be on sale by Supt of Documents, U. S. Government Printing Office, Wash. 25, D. C. at a nominal price. ///DOD 1003/

GAS COOLED REACTORS CONFERENCE

will be held by AEC on 21 and 22 Oct. Place: Oak Ridge Natl Lab. Conference is primarily for holders of Commission Access Permits and those engaged in reactor develop programs, but AEC says other institutional and industrial reps are welcome to attend. ///AEC 0925/

DART ON WAY OUT, FRENCH MISSILE IN

French anti-tank missiles SS10 and SS11 will replace American DART. Army hasn't committed itself yet, but rumor has been confirmed at least 90% sure that French missiles will take DART's place. ///D/

WEAPON SYSTEMS LIST OF AIR MATERIEL COMMAND, DAYTON

AMC procurement, under M/Gen William O. Senter, is currently in action on 24 separate weapon systems. The up-to-date list below does not include training aircraft, transports or tankers. Nor does it include such items as trailers, launching facilities, testing devices, special maintenance & repair tools, special fuels & fuel handling equip, training devices or special cover and personal equip for men who work on a/c and missiles.

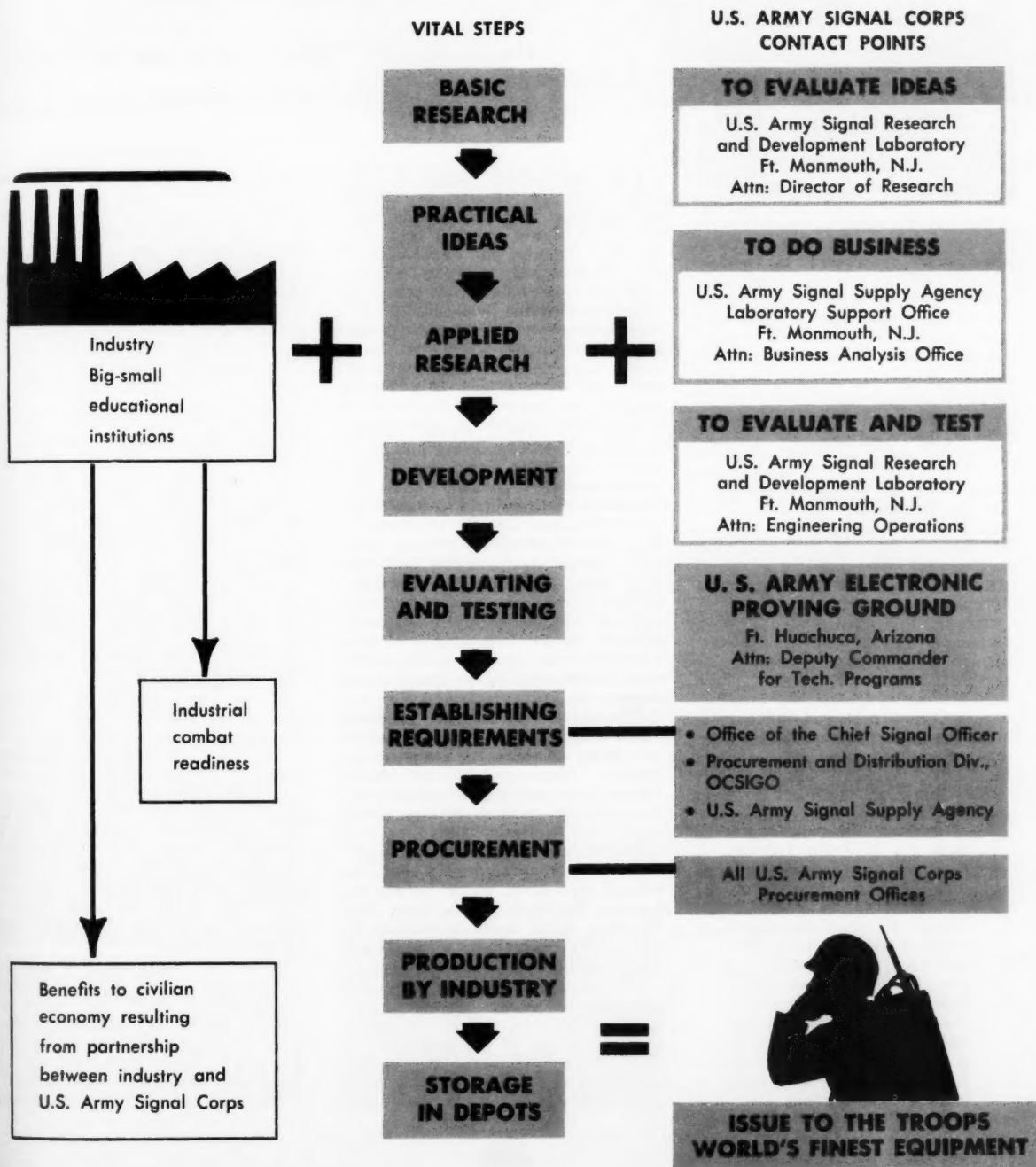
FIGHTERS				MISSILES			
DESIGNATION	CONTRACTOR	STATUS	LSM				
F-100 <i>Super Sabre</i>	North American	Operational	AMA	TM-76 <i>Mace</i>	Martin	In test	WR
F-101 <i>Voodoo</i>	McDonnell	Operational	SM	IM-99 <i>Bomarc</i>	Boeing	In test	OO
F-102 <i>Delta Dagger</i>	Convair	Operational	OO	GAR-1&2 <i>Falcon</i>	Hughes	Operational	MA
F-104 <i>Starfighter</i>	Lockheed	Operational	SA	GAR-8 <i>Sidewinder</i>	U. S. Navy	Operational	MA
F-105 <i>Thunderchief</i>	Republic	In Test	SA	MB-1 <i>Genie</i>	Douglas	Operational	OO
F-106 <i>Delta Dart</i>	Convair	In Test	MO	SM-62 <i>Snark</i>	Northrop	Production	OO
F-108	North American	Development	SA	GAM-63 <i>Rascal</i>	Bell	Production	OC
BOMBERS				SM-75 <i>Thor</i>	Douglas	Development	SB
				SM-65 <i>Atlas</i>	Convair	Development	SB
				SM-68 <i>Titan</i>	Martin	Development	SB
				GAM-72 <i>Quail</i>	McDonnell	In test	OC
B-52 <i>Stratofort</i>	Boeing	Operational	OC	GAM-77 <i>Hound Dog</i>	North American	Development	OC
B-58 <i>Hustler</i>	Convair	In Test	SA	SM-73 <i>Goose</i>	Fairchild	In test	OO
B-70	North American	Development	SM				
Nuclear Bomber	(All details classified)						

///AMC/



data SPECIAL REPORT

U.S. Army Signal Corps Research, Development and Procurement VITAL STEPS AT A GLANCE





....An Invitation

TO DO BUSINESS WITH USASSA....

The U.S. Army Signal Supply Agency



**COL. ELMER L. LITTELL
COMMANDING, USASSA**

Col. Elmer L. Littell assumed command of USASSA in June 1957.

Previous assignments include G-4 Philippine Islands; Research and Development; Signal Corps Engineering Laboratories; Sacramento Signal Depot Commander; Chief of Depot Branch; Procurement and Distribution Div., OC Sig O; and Signal Officer, Philippine Islands. In World War II he was Deputy Signal Officer of the First U. S. Army. He is a trained Logistics Officer and holds many commendations.

I am particularly happy for this opportunity to explain to DATA readers how USASSA spends over ½ billion dollars annually and how qualified suppliers can participate in our procurement program. Three thousand contractors are currently manufacturing the thousands of communications and electronics equipments and supplies which the Signal Corps buys for the Army, and in some cases, the Navy, Air Force, and Marine Corps.

The U.S. Army Signal Supply Agency (USASSA), through its headquarters in Philadelphia and its Regional and Procurement Offices in Pasadena, California; Ft. Huachuca, Ariz.; Chicago, Ill.; Ft. Monmouth, N.J.; and Washington, D.C., is presently administering 10,000 contracts at a value totalling over 2 billion dollars. The types of contracts awarded include research and development, service test, industrial preparedness measures, production, communications systems, and operations studies.

There are over 175,000 different Army Signal Corps items in active use. Many of these are major items ranging from transatlantic radio transmitters and highly complex radar stations to the familiar hand radios and field telephones.

The supply effectiveness of USASSA stems from the supply effectiveness of each Army Signal Corps contractor. We want you to know that the door which leads to sharing in our supply program is always open to top quality producers.

New contractors who feel they can manufacture Army Signal Corps items are welcome to visit our Headquarters or any of our Regional Offices which have been strategically located so as to facilitate doing business with contractors in those geo-

graphic areas. At each of our offices you will find a Small Business Specialist and Industrial Relations Officer ready to assist you, the DATA businessman, to get on our bidder's list. They will furnish counsel and guidance on policy procedures and methods involved in becoming a responsive and responsible supplier. The Small Business Specialist maintains a list of recent awards reflecting the names and locations of successful bidders. This list may be reviewed with the visiting contractor who may be interested in initiating direct negotiations with prime contractors to obtain a sub-contract or be placed on the list for future consideration. During Fiscal Year 1958 Small Business concerns were awarded prime contracts totalling over 81 million dollars. Details highlighting the location, who to see, and types of contracts awarded at USASSA'S Headquarters and at each of our Regional Offices can be found on adjoining pages in this DATA-SIGCOR issue.

If you are a contractor who has long served the Army Signal Corps during and since preceding wars, or if you are a new contractor who has joined us during recent emergencies, may I take this opportunity to thank you for a job well done. Be assured that through your engineering skills, production talents, and your research and development efforts, the field commander and combat soldier now have the world's finest and most effective communications and electronic tools available to them.

In the next paragraphs I will try to highlight for you some significant considerations which may serve as helpful guides to contractors who wish to continue doing business with the Army Signal Corps as well as those who seek their first contract.

The first and most important step



is to get on our bidder's lists or if you are already on a list, to be sure that the records of your production capabilities and facilities are current. USASSA has mechanized its bidder's list to assure an equitable opportunity to all firms to be solicited on a rotation basis. Opportunities to bid are also given to contractors not on our bidder's lists who learn of our procurement requirements while examining our bid boards or read about them in published announcements.

Make sure your bids are realistic. Don't attempt to gold plate lugs or anticipate engineering improvements that do not enhance the item's effectiveness. Remember that you are competing with other bidders, and bid on the item as required. Satisfy all provisions of the solicitation and start by understanding those required military specifications that must be met. Don't price yourself out of business on production contracts by trying to cover your research and development overhead. You are responsible for your mistakes. Recovery due to mistakes is very unlikely. Keep in mind that you must sell yourself to the U. S. Army just as effectively as you sell to other markets.

3. Adherence to contract delivery schedules is most important. This factor is by far one of the most critical. Failure to deliver as scheduled reduces our supply effectiveness and in turn the effectiveness of those waiting for the item at the end of the supply line. Delivery delays made during any stage of development or production often trigger off a chain reaction which may cause critical extension of the supply cycle. Consider what happens to your production line when a subcontractor fails to deliver a needed component. While this may be critical to your welfare, failure to deliver needed military communications equipment

when scheduled can gravely affect our national defense. Past record of deliveries by contractors is given very careful consideration at the time of pre-award survey.

4. Contractors are encouraged to watch the bid display boards at our procurement and publicity offices. Subscription to "Synopsis of U. S. Government Proposed Procurement Sales and Contract Awards" published by the Department of Commerce, and other related trade periodicals which publish government business announcements, are helpful aids.

At our USASSA Headquarters in Philadelphia we have four major activities; Stock Control, Procurement, Industrial Preparedness, and Quality Assurance.

We are organized to meet the challenges of today's complex supply problems which are magnified by the global responsibilities of our Armed Forces, the destructive force of new weapons, the speed and range of delivery requirements, and the overwhelming increase in the cost and complexity of our material. Our supply managers must achieve a delicate balance of strict economy, without jeopardizing the combat effectiveness of any military function by failure to deliver.

Our supply cycle begins in our Stock Control Activity and is considered the heart of our operation. Here management must schedule requirements based on experience and collaboration with our engineering laboratories who set the pace for technological advances.

Our Industrial Preparedness Activity has the responsibility of planning with Industry for mobilization preparedness. It also recommends sources and producers of current equipment

capable of converting from peacetime production to expanded mobilization requirements. It administers the program of reserve production equipment in lay-away for an emergency and for eliminating production bottlenecks which would prevent or delay mobilization supply. To be considered as a contractor in this field keep us informed of your new products and techniques. Representatives at our Headquarters and personnel of the U. S. Army Research and Development Laboratories, Ft. Monmouth, N. J., are available to discuss requirements for participation in the mobilization field.

Quality and reliability are factors upon which may depend not only the success of military operations, but our very way of life as well. In achieving its primary objective of assuring product quality, USASSA's Quality Assurance Activity works in close collaboration with Industry.

In closing, may I again extend to you an open invitation to do business with USASSA. Working together as partners in communications and electronics will insure successful accomplishment of our mission of supplying signal equipment in the Right quantity, of the Right quality, to the Right place, at the Right time.

I shall welcome your suggestions as to how we might improve our relations to insure complete understanding and thorough appreciation of our mutual problems for the full cooperation so necessary for National Defense.

ELMER L. LITTELL
Colonel, Signal Corps
Commanding



USASSA's Bid Display Board

USASSA'S PROCUREMENT AND REGIONAL OFFICES

**Procurement and Distribution Division,
Office of the Chief Signal Officer
Munitions Building, Room 2521
Washington 25, D. C.
Telephone: Liberty 5-6700, Extension 67255
Major General H. L. Scofield, Chief**

This is the central staff activity for the Chief Signal Officer of the Army in the execution of the Army Signal Corps' Procurement and Distribution missions. The Procurement and Distribution Division has staff and technical supervision over the U. S. Army Signal Supply Agency, the U. S. Army Signal Equipment Support Agency, and the U. S. Army Signal Corps Branch Depots.

**Headquarters, U. S. Army Signal Supply
Agency
225 South 18th Street
Philadelphia 3, Pennsylvania
Telephone: Kingsley 6-3200
Colonel Elmer L. Littell, Commanding**

Practically all production and industrial preparedness measure contracts are placed by the Headquarters, U. S. Army Signal Supply Agency (USASSA). A bid display board is maintained. An invitation to get on USASSA's bidders' lists is extended to all interested contractors.

Contractors in the New York area may obtain procurement assistance by visiting the New York Office of USASSA located at 46th and Northern Boulevard, Long Island City 1, New York.

**Laboratory Procurement Support Office
U. S. Army Signal Supply Agency
Fort Monmouth, New Jersey
Telephone: Eatontown 3-1000,
Extension 51115
Colonel James E. Foster, Commanding**

The bulk of its procurement workload emanates from the United States Army Signal Research and Development Laboratory, Fort Monmouth, N. J. It is also responsible for procurement of components and equipment prototypes, systems development, first time production upon completion of the development phase, and technical representative contracts for the maintenance of field equipment. During Fiscal Year 1958 it placed R & D and field test procurements totalling \$175.3 millions.

**Midwestern Regional Office
U. S. Army Signal Supply Agency
615 West Van Buren Street
Chicago 7, Illinois
Telephone: Andover 3-0234
Colonel Carl A. Cuphaver, Commanding**

This office has sole procurement responsibility for approximately 40,000 items of communication and electronics equipments covering 13 major commodity groups, including telephone, teletype, electrical components and hardware, antennas, photographic equipment and supplies, waveguides, and related equip-

• LOCATIONS • WHO TO SEE* • WHAT THEY BUY

ment. It is responsible for contract administration and quality assurance activities for an area comprising twenty states. Over 2000 contracts having a total value of over 300 million dollars are currently being administered. It maintains a bid display facility, displaying all bid solicitations generated at Headquarters, USASSA, and other Army Signal Corps purchasing offices.

**U. S. Army Electronic Proving Ground
Procurement Office**
Fort Huachuca, Arizona
Telephone: Gladstone 8-3311
Lt. Colonel Robert W. Strunk, Commanding

Responsibility for placing and administering special equipment contracts and contracts for services and studies fall to the unit.

Contractors engaged in individual private R & D programs on equipments and systems having application to Army needs are encouraged to submit unsolicited proposals to the USAEPGPO, P. O. Box 748, Fort Huachuca, Arizona. Be assured that your proprietary rights will be protected and that ensuing contracts, if warranted, may be sole source for further development or in-service test if within the scope of current procurement regulations.

Western Regional Office
U. S. Army Signal Supply Agency
125 South Grand Avenue
Pasadena 2, California
Telephone: Sycamore 6-0471
Colonel Brookman R. Painter, Commanding

While the Western Regional Office has no contract award function, it is responsible for the administration of Signal Corps contracts placed within the 11 state area which includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. West Coast suppliers are encouraged to visit this office for assistance in contract clarification, for guidance in getting on the bidders' lists, and for counsel in submitting bids on current solicitations. A bid display board is maintained showing all current Army Signal Corps procurements.

Washington Procurement Office
U. S. Army Signal Supply Agency
**Main Navy Building (Munitions Building),
Room 2603**
Washington 25, D. C.
Telephone: Liberty 5-6700, Extension 65254
Captain R. W. Allen, Commanding

As a special mission procurement activity, this office serves the Signal Corps agencies located in the metropolitan Washington area. It does NOT place production contracts nor contracts involving items of military specifications. It primarily buys standard commercial communications equipments and materials, as well as procurements for technical services, installations of fixed-plant communications equipment and equipment leases.

Other Army Signal Corps buying offices not part of U. S. Army Signal Supply Agency.

U. S. Army Alaska Communications System
550 Federal Office Building
Seattle 4, Washington
Telephone: Mohawk 3160

Contracts for installations and maintenance of the Alaska Communications System.

Army Pictorial Center
35-11 Thirty-fifth Avenue
Astoria, Long Island City, New York
Telephone: Ravenswood 6-2000

Places contracts for television and photographic equipment and supplies, film productions, personal services and commercial adaptations required by the Army Pictorial Center.

*WHO TO SEE:

For general counsel, ask to see the Small Business Specialist or Industrial Relations Officer, who will be pleased to assist you. For specific contract matters the receptionist at each office will gladly make arrangements for you to visit with the Commodity Manager, Contracting Officer, or individual who can best help you.

Message from

Army Signal Corps Chief of Research and Development



■ Research and development in the Army Signal Corps embraces such fields as communications, combat surveillance, radar, automatic data processing, avionics, electronic countermeasures, photography and meteorology. We are interested in technique or design developments in all these broad areas which will help us give the U.S. Army greater capabilities in combat readiness and deterrent strength.

In many ways electronics research and development has reached a point where we must do much more than refine and improve—we must come up with radically new components to perform functions. Breakthroughs like the transistor are needed in componentry, for example, in resistors or capacitors or others. The development of Masers must be pushed to produce smaller and lighter ones, with even greater precision in frequency stabilization.

In componentry we have gone beyond printed circuits and early inceptions of miniaturizing techniques—to micro-miniaturization and micro-modules, by which together with industry we are seeking salient reductions in size and weight. We not only want advanced electronic systems and equipment which are smaller and lighter and with greater reliability, but those which will do a brand new job or do the old one vastly better. Modular replacement of defective assemblies and simple “go” or “no-go” type signals for the operator are other features on which we are working.

For systems which communicate information in one form or another, there is a continuing need to devise new and more suitable means of presenting the information. And for the Army's requirements the accent must be on

speed of interpretation or understanding the presentation and the accuracy and completeness of what is being given.

Another illustration of our interests is in advancing even more the design of antennae with much narrower beam width and improved characteristics for pre-determining or controlling the limits of transmission. With the crowded spectrum and new frequency requirements which are occurring everywhere, this interest reflects those of industry and the national civilian community as well, and is far from limited to the military or the Army.

In the broad field of energy sources the Army Signal Corps is likewise concerned with pressing ahead for new and more efficient and more suitable means of providing power for a variety of military electronic requirements. Among characteristics sought in their physical packaging are silent operation, long life, light weight and size and maximum independence from parental sources for wider freedom of application, to mention a few.

Our general philosophy of approach is directed to systematic means to meet the tactical and strategic needs of the Army. Thus our interest in electronic systems and elements is guided by their adaptability and the ways in which we can integrate them as part of our systems.

BRIGADIER GENERAL, USA
Chief, Research and Development Division
Office of the Chief Signal Officer
Department of the Army

MISSION

of the U. S. Army Signal Research and Development Laboratory

To conduct continuing research in all fields of physical science leading to the development of new techniques, and the design and improvement of communication, radar, electronic countermeasures, automatic data processing, radiological, meteorology, photographic, drones, and other surveillance equipments, related components, and spe-

cial electronic and solid state devices for the United States Army (and for other U. S. governmental agencies when so directed by competent authority); and, within established national policy, equipment material and systems for communications security; to provide consulting service to the Chief Signal Officer in these technical fields; and to plan programs in these areas.

AREAS

of U. S. Army Signal Corps Research Interest

Radiation physics
Electron acoustics
Electronic power
Radiological detection
Thermionics, vacuum tube development
Quartz crystals
Antennas, propagation research
Facsimile
Enemy missile, gunfire detection
Micro-optics

Radio interference suppression
Receiver development
Photographic, camera development
Production engineering
Primary, secondary battery development
Circuit research
Micro-module miniaturization
Automatic data processing
Meteorology
Space electronics

FY 59 FUNDING for Signal Corps Programs

Research and Development • \$ 82.2 million
Procurement and Production • 299.0 million
Operations and Maintenance • 209.8 million

Currently planned figures of approximate funding.

WEST COAST OFFICE

United States Army Signal Research & Development Laboratories

Provides coverage of USASRD research and development contractual effort within the west coast area to ensure adequate technical guidance and progress, and assists all organizational elements of the Chief Signal Officer in coordinating their activities on the west coast.

1. Provides guidance to commercial organizations and scientific institutions engaged in USASRD research and development.
2. Furnishes technical data to USASRD and interested Signal Corps organizations on facilities and technical abilities of contractors in the west coast area.
3. Serves as the focal point in the west coast area for USASRD public relations and the interchange of technical information with technical personnel and contractual concerns, academic and

scientific institutions and other service organizations.

4. Renders assistance to various Government contracting offices in the west coast area by performing suppression tests wherever MIL specifications are cited and provides engineering services to the various contractors in the design and testing of radio interference suppression systems.
5. Upon request, supervises acceptance tests of equipment being developed by west coast contractors.

Interested West Coast Contractors should contact

MR. JULES KRAVETZ
Chief, Signal Corps, R&D West Coast Office
75 S. Grand Ave.
Bldg. 6
Pasadena 2, California

U.S. ARMY SIGNAL CORPS CLEARANCE MADE EASY!

by Ted Di Renzo

Public Information Officer
U.S. Army Signal Supply Agency



■ Just so long as you don't give secrets away, tell an untruth, or expect Army indorsement, the U. S. Army Signal Corps is always ready to encourage and assist you in publicizing your significant Army Signal Corps contributions locally, nationally and internationally.

Too often requests for Signal Corps clearances to exhibit, photograph, advertise, make speeches, publish papers or news releases are sent to the wrong office too late. This only succeeds to waste valuable time and makes everybody concerned unhappy. On the other hand, close coordination with the responsible Public Information or Technical Liaison Officer at least one month in advance of your required dead line, not only simplifies the clearance and makes everybody happy, but also produces better public relations product for you, the Army, and the Army Signal Corps.

This article will try to cover **WHERE** and to **WHOM** you should send your requests for clearances, **WHAT** information is normally not releasable, **HOW LONG** it usually takes for processing, and **WHY** obtaining a clearance protects you and your Government. As used through the article, the term "request for clearance" covers all information media and public relations presentations.

In some cases premature release of publicity may constitute a grave threat to our national security. There have been specific cases in the past where manufacturers have unknowingly, and without prior clearance, released information that seemed harmless to them but which actually compromised classified military information! The best rule to follow when releasing information involving the military is **"WHEN IN DOUBT, CHECK IT OUT!"**

Subcontractors should coordinate their clearance requests with their prime contractors on Army Signal Corps contracts who in turn should request Army clearance.

Within the Army Signal Corps, the Public Information or Technical Liaison Officer is responsible for the processing of all requests. He reviews the information to be released to insure that it is not classified, distorted, or exaggerated. He checks out incorrect statements or claims which if published would impair the Army's Industrial Relations, public respect and public confidence.

For example, imagine your reaction if you produced "such and such" for the Army Signal Corps and your competitor was permitted to announce that he was the "first",

the "only", or the "best" manufacturer producing this same item. You would be rightly annoyed. So you see, the requirement to obtain a clearance prior to publication is actually an "insurance policy" to protect all manufacturers against incorrect statements or claims.

Requests for clearances on current contracts should be forwarded in triplicate at least one month in advance to the Contracting Officer charged with its administration. He reviews it for security and accuracy and then sends it to the Information Officer who evaluates it to determine if further clearances are necessary. Requests without controversial elements are approved "on the spot" by the Information Officer and the contractor is immediately advised. Requests that involve policy or matters beyond the installation information officer's responsibility must be forwarded to other Army Signal Corps offices for their review and approval. In some cases, particularly for national releases, clearance must be obtained from the Chief, Office of Technical Liaison, (OTL), Office of the Chief Signal Officer, Washington, D.C., Department of the Army, and Department of Defense. This processing takes time, of course, but is mandatory for specific clearances such as major contract releases and releases involving Army R&D, logistical or tactical operations, policies or doctrine.

Getting Army "clearance" for proposed material for public release is a lot easier if you coordinate with the respective Contracting Officers or the Information Officers. One of the objectives of the Information Officer is to get the Army's story before the public so as to earn its support and confidence. Get to know him because he is most anxious to help you help him accomplish this mission, which has benefits for your own industry. He will help you get Army Signal Corps photographs for publication or display, the official Army Signal Corps insignia, and other information and public relations materials. He only asks one thing of you, *please don't wait until one or two days before your deadline to send him your request for clearance.* Occasionally with spot news a short deadline is unavoidable. This should be the exception and not the rule. In such cases he will bend over backwards to help process your request. But, when everybody submits an "emergency" deadline the whole clearance cycle breaks down and relations become strained. The key to getting "clearance" is really you; because you start the cycle. ■

Roperational Requirements

expressed military needs

ELECTRICITY AND ELECTRONICS

ELECTRONIC COMPONENTS AND SYSTEMS

859. MICROWAVE FILTERS.—Extremely sharp cut-off selective filters for the microwave region (L band or X band.) The purpose would be to increase the accuracy of reflection Doppler systems by increasing signal-to-noise ratio.

700. QUICK HEATING CATHODE.—An efficient indirectly heated, unipotential, thermionic cathode capable of operation in less than one second.

858. TRANSISTORS.—Transistors which will operate satisfactorily in the HF, VHF or UHF regions at temperatures well in excess of 70°C. There is also demand for transistors which will function at the various microwave frequencies.

735. HERMETICALLY SEALED CARTRIDGES.—Miniature hermetically sealed cartridges for transistors and crystal diodes which may be sealed off at temperatures below 100°C., with the seal being maintained at temperatures up to 150°C.

733. ACOUSTIC TRACKLESS TRANSDUCER.—A sharply unidirectional device of small size compared to wavelength for sound detection on signals as low as 5 cycles per second.

712. HEAT DISSIPATION IN ELECTRONIC ASSEMBLIES.—The high incident temperatures in small electronic devices requires a new means of cooling such devices other than conventional means which require electrical energy and comparatively large cooling devices, such as blowers, fans, etc. A static device or material is needed to serve as a heat rectifier to provide unidirectional transfer of heat or a unidirectional heat exchanger.

701. BROAD BAND AMPLIFIER.—An amplifier with high gain and bandwidth for frequencies up to and including UHF, of lightweight, rugged and reliable design having relatively simple low drain power supply requirements.

699. THERMIONIC OR COLD EMITTER.—Devise a thermionic emitter or cold emitter capable of greatly increased efficiency and suitable for use as a cathode in the usual thermionic electron tube.

662. MICROWAVE FREQUENCY DISCRIMINATOR.—There is interest in a frequency discriminator which would be useful and practical in laboratory microwave oscillator measurements.

826. DETECTORS.—Small, rugged, durable and sensitive detectors for use in infrared and visible spectrum ranges.

824. PROJECTILE ANTENNA.—A small, rugged and efficient antenna for use on projectiles at VHF and UHF.

823. MICROWAVE SOURCE.—A microwave source in millimeter range capable of delivering watts of coherent radiation.

822. TRANSISTORS.—Transistors capable of operating efficiently as oscillators and amplifiers at ultra high frequencies.

821. DIODE DETECTOR.—Diode detector capable of efficient operation at microwave frequencies.

541. MICROWAVE DIRECT STORAGE OR MEMORY CIRCUIT.—Microwave direct storage or memory circuit in which the frequency and/or modulation may be read off after a time delay of one (1) to one hundred (100) seconds.

542. NON-HETRODYNYING TYPE OF FREQUENCY DIVIDER.—A non-hetrodyning type of frequency divider for microwave frequencies.

570. IMPROVED OR NEW TYPE COMMUTATING AND DECOMMUTATING FOR TELEMETERING

576. HOMING NAVIGATION SYSTEM.—Simple homing navigation systems, including homing heads, gyros, etc. Rugged and light weight.

609. INSTRUMENT RECTIFIER.—A low current instrument rectifier (up to 200 milliamps DC) that will function properly within the temperature range of -60°F to +160°F.

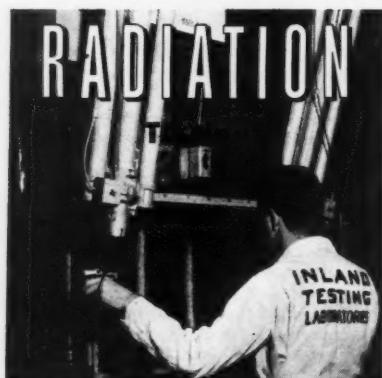
745. ELECTRONIC MANUFACTURING & PACKAGING TECHNIQUES.—New manufacturing and packaging techniques to increase the reliability of components of guided missiles, particularly electronic components. Extreme reliability of components is required in all guided missile designs.

For more information on these Operational Requirements write to:
NATIONAL INVENTORS COUNCIL
U S DEPARTMENT OF COMMERCE
WASHINGTON 25, D. C.

IN U.S. ARMY SIGNAL CORPS RESEARCH AND ROSTER OF KEY PERSONNEL

WHO'S

WHO



New Hot Cell Facilities now available for commercial use—the country's largest Cobalt-60 gamma facility can be employed for nuclear radiation effect studies on materials, components, and systems and leak detection in sealed components. Tests can also be made on items already subjected to a nuclear radiation field. A source of 62,000 curies, providing a maximum flux in excess of 10^6 roentgens per hour, is located in a hot cell 16 ft. cube. A viewing window for visual observation combined with master slave manipulators provides maximum versatility for both large and small sample sizes. The cell is used for both static and dynamic testing.

INLAND TESTING LABORATORIES

COOK TECHNOLOGICAL CENTER
6401 OAKTON STREET, MORTON GROVE, ILL.
1482 STANLEY AVENUE, DAYTON, OHIO

WASHINGTON, D.C.

	Code	Pentagon Room	Liberty 5-6700 Extension
CHIEF SIGNAL OFFICER			
Lt. Gen. J. D. O'Connell	SIG	2E254	56604
Principal Assistant Mr. J. E. Prince	SIG	2E266	79967
Administrative Assistant Mrs. M. L. Brancheau	SIG	2E254	72549
DEPUTY CHIEF SIGNAL OFFICER			
Brig. Gen. R. T. Nelson	SIGDC	2E254	52070
Administrative Assistant Mrs. M. K. St. Clair	SIGDC	2E254	52070
EXECUTIVE			
Col. D. W. Eddy	SIGEO	2E262	71279
Executive Staff Lt. Col. A. E. Cotter	SIGEO-2	2E262	71279
OFFICE OF TECHNICAL LIAISON			
Lt. Col. K. E. Shiflet	SIGEO-4	2C252	53631

PLANS AND PROGRAMS DIVISION

CHIEF			
Col. O. G. Charles	SIGPL	2B252	52400
EXECUTIVE			
Lt. Col. G. R. O'Neal	SIGPL-1	2B252	76067
WAR PLANS BRANCH			
Lt. Col. C. H. Shurtleff	SIGPL-3	2B262	53023
PROGRAMS BRANCH			
Lt. Col. R. E. Perrey	SIGPL-4	2B269	72001
ADVANCE PLANS BRANCH			
Lt. Col. J. M. Johnson	SIGPL-6	2B266	73774
ARMY ELECTRONIC WARFARE POLICY COMMITTEE			
Maj. P. T. Nolan	AEWPC	2C255	52856

FORT MONMOUTH, N.J.

U. S. ARMY SIGNAL RESEARCH AND DEVELOPMENT LABORATORY

	Code	Location	Extention Eatontown 3-1000
COMMANDING OFFICER			
Col. H. McD. Brown	CG	3C124	X 51111
DEPUTY COMMANDER			
Col. Paul W. Albert	CD	3C124	51126
CHIEF OF TECHNICAL STAFF			
Col. John E. Watters	CT	3C124	52240
EXECUTIVE OFFICER			
John S. Crull	CX	3C124	51144
DIRECTOR OF RESEARCH			
Dr. H. A. Zuhl	RE	3C124	51136
DIRECTOR OF ENGINEERING			
S. E. Petrillo	DE	3C118	51171
DIRECTOR OF TECHNICAL PLANS			
H. W. Parmer	DP	3C134A	52112
DIRECTOR OF MANAGEMENT			
R. A. Kineavy	MM	3C114A	51131
OFFICE OF RESEARCH OPERATIONS			
DIRECTOR			
H. A. Zuhl	RE	3C124	51136
ASST. DIRECTOR			
H. P. Hutchinson	RE	3C130	52236
ASST. DIRECTOR			
E. K. Kaprellan	RE	3C132B	52884
ASST. DIRECTOR			
Dr. E. M. Reilly	RE	3C128	52608
ASST. DIRECTOR			
Dr. H. K. Ziegler	RE	3C130	52709
ASST. DIRECTOR (Adm.)			
R. O. Parker	RE	3C127	52135
SPEC. ASST. TO DIRECTOR			
N. J. Field	RE	3C127	52135
INSTITUTE OF EXPLORATORY RESEARCH			
Dr. E. M. Reilly	REX	3C128	52608
RESEARCH ADM. BRANCH			
R. O. Parker	REA	3C127	52135

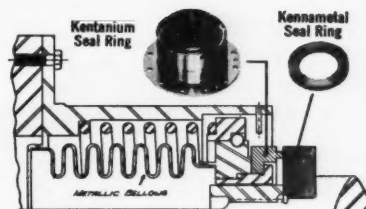
DEVELOPMENT AND PROCUREMENT

PHILADELPHIA, PA.

U. S. ARMY SIGNAL SUPPLY AGENCY

225 South Eighteenth Street
Philadelphia 3, Pa.

	Code	Location	Kingsley 6-3200
COMMANDING OFFICER Col. E. L. Littell	SIGSU-A	12th fl.	Ext. 8000
DEPUTY COMMANDING OFFICER Col. W. H. Goeckle	SIGSU-A1	12th fl.	8001
EXECUTIVE OFFICER Maj. E. E. Lehman	SIGSU-A2	12th fl.	8101
COMPTROLLER M. H. Ullery	SIGSU-B	12th fl.	8200
INSPECTOR GENERAL Maj. H. A. Stuart	SIGSU-C	12th fl.	754
SMALL BUSINESS AND INDUSTRY LIAISON OFFICE E. O'Neill	SIGSU-G1	1st fl.	749
PUBLIC INFORMATION OFFICE T. Di Renzo	SIGSU-O	2nd fl.	8330
INTELLIGENCE OFFICE Capt. T. G. Murphy	SIGSU-I	12th fl.	8332
DEPUTY FOR ADMINISTRATIVE SERVICES Col. J. E. Ligon	SIGSU-J	6th fl.	8300
ASST. DEP. FOR ADMIN. SERVICES L. A. Venuto	SIGSU-J	6th fl.	8300
CIVILIAN PERSONNEL DIVISION Miss A. I. Kostopoulos	SIGSU-P	2nd fl.	700
RECORDS MANAGEMENT DIVISION Maj. J. L. Pfeiffer	SIGSU-J4	6th fl.	253
TRANSPORTATION DIVISION Lt. Col. J. C. Woodburn	SIGSU-J6	6th fl.	363
PROVOST MARSHAL Maj. R. E. Carroll	SIGSU-J3	1st fl.	684
STATION SUPPLY DIVISION J. Polizzotti	SIGSU-J5	6th fl.	8318
COMMUNICATIONS DIVISION W. J. Segan	SIGSU-J8	2nd fl.	8380
DEPUTY FOR STOCK CONTROL J. Melvin	SIGSU-F	4th fl.	200
ASST. DEP. FOR STOCK CONTROL Lt. Col. Paul S. Balas	SIGSU-F1	4th fl.	201
HEADQUARTERS STAFF L. Alevey	SIGSU-F2	4th fl.	394
STOCK MANAGEMENT DIVISION Lt. Col. R. H. Arnold	SIGSU-F4	3rd fl.	8237
ASST. CHIEF STK. MGMT. DIV. H. Bernstein	SIGSU-F4	3rd fl.	8236
SUPPLY COORDINATION DIVISION Maj. L. S. Johnson	SIGSU-F6	4th fl.	8225
ASST. CHIEF SUP. COORD. DIV. J. Donziger	SIGSU-F6	4th fl.	8225
CATALOGING & PACKAGING DIV. Maj. W. E. Varney	SIGSU-F7	QM	700
ASST. CHIEF CAT. & PAK. Capt. Pautz	SIGSU-F7	QM	700
MAJOR EQUIPMENTS DIVISION Maj. E. J. Glading	SIGSU-F10	4th fl.	243
ASST. CHIEF MAJ. EQUIP. DIV. E. Feuer	SIGSU-F10	4th fl.	243
DISTRIBUTION DIVISION Maj. A. Minyo	SIGSU-F3	3rd fl.	353
ASST. CHIEF DIST. DIV. H. Siskin	SIGSU-F3	3rd fl.	353
DEPUTY FOR INDUSTRIAL PREPAREDNESS L. Krapust	SIGSU-R	15th fl.	300
ASST. DEPUTY FOR INDUSTRIAL PREPAREDNESS A. G. Christiansen	SIGSU-R	15th fl.	301
PRODUCTION ALLOCATION DIVISION A. Rowland	SIGSU-R3	15th fl.	8113
PRODUCTION DEVELOPMENT DIVISION T. Kyne	SIGSU-R2	15th fl.	8143
COMPONENTS AND MATERIALS REQUIREMENTS DIV. W. Kays	SIGSU-R4	15th fl.	8133



KENNAMETAL*

unlubricated seal rings provide
substantially zero leakage at
mile-a-minute rubbing speeds

At rubbing speeds of 4200 to 5400 ft./min., the hydraulically balanced seal shown above achieves substantially zero gas leakage. Excellent wear characteristics of Kennametal and Kentanium* Seal Rings make possible unlubricated dry rubbing at peak speeds.

Stein Seal Company, Philadelphia, Pa., solved major sealing problems on many applications by using Kennametal and Kentanium parts in their hydraulic balanced seal design such as illustrated above. Using rings made of these hard carbide, wear-resistant compositions, it is possible to operate with higher spring forces and in much higher temperatures than when rings of conventional sealing materials are used.

The outstanding physical properties of Kennametal compositions provide many more answers to rotary seal ring problems in petroleum refining and transportation, high-pressure high-temperature chemical production and nuclear power. For example, K501, a platinum-bonded carbide, is used to confine liquid oxygen and red fuming nitric acid. Results reported by the customer are "far superior to any previously-used materials, with no indication of face wear."

Various grades of Kennametal compositions hold economical answers to your need for high YME, low thermal expansion, high resistance to abrasion, erosion, corrosion, impact and pressures. For positive sealing, with little or no maintenance, mating surfaces of Kennametal Seal Rings can be lapped to a flatness less than two light bands, with a surface finish better than two microinch.

For more information, send for Booklet B-111A, "Characteristics of Kennametal." Write to KENNAMETAL INC., Dept. DT, Latrobe, Pennsylvania.

*Trademark

3175

INDUSTRY AND
KENNAMETAL
...Partners in Progress



Using the giant radar transmitter DIANA, Signal Corps engineers have bounced signals off the moon for several years. The Navy's Mark II Minitrack has received these signals and is now being used in a series of tests aimed at perfecting a technique by which the operation of all Western Hemisphere satellite tracking stations can be tested upon their completion and placement into operation.



Gamma ray absorption in the body from radioactive sources, such as an atomic or hydrogen bomb explosion, can be determined at a glance with the "Fountain Pen Dosimeter" (Radioometer IM-93). This rugged little detector can be read like a spyglass, and has an easily visible scale measuring gamma ray exposure up to 600 roentgens.

RECENT DEVELOPMENTS

1. Missiles can now be traced from a distance of 300 miles with the Signal Corps' ton-and-a-half telescopic tracker. This optical colossus utilizes a 400-pound lens of 160-inch focal length to clearly show on its scope fast moving objects in natural color, and simultaneously takes black-and-white photographs of rockets, jets, and other flying objects. Developed by the Army Signal Corps Engineering Laboratories, Ft. Monmouth, New Jersey, to operate in conjunction with radar tracing sets, the optical tracker functions with a high degree of accuracy, clearly defining the difference between two types of objects moving at the same time within its range.

2. A single enemy can be spotted moving a half-mile away in darkness or fog with the Army's new compact, all-weather radar "eye" (AN/PPS-4 Radar Set). This electronic sentry was developed by Sperry Gyroscope Company, Great Neck, New York, to convert pinpoint radar signals for easy detection in the observer's headphone. Highly mobile, the set is self-contained in a drum-shaped metal case, 14 inches high by 14 inches long.

3. With an asbestos glove a technician removes a plastic photograph from an oven where it has been developed by baking for five minutes at 320° fahrenheit. Heat alone brings out the image on the photo-sensitive plastic; a dark-room and photographic chemicals are not required. This new print-making technique, discovered by the Ferro Chemical Company of Bedford, Ohio, could be of particular value in areas affected by atomic radiation as it is almost unaffected by gamma rays.

4. New experimental Army earphones can turn an ear-splitting roar to a whisper electronically. The tiny circular microphone (lower disc) in the earpiece picks up noise that leaks through ear cushioning. It then produces a second noise, opposite in phase to the first, which in great measure cancels the first to produce relative quiet. Radio messages come through loud and clear despite problem noise in tanks and planes. This device was developed jointly by the U.S. Army Signal Research and Development Laboratory and the Radio Corporation of America.

5. Missile Master, the country's first electronic system specifically for controlling and coordinating the use of Nike anti-aircraft missile batteries and other advanced Army weapons as they become available, collects information on the location of aircraft and their identity, presents this information on electronic displays, and distributes this data to the missile firing batteries. Human supervision is imposed at the most critical points.

6. A soldier inspects a message from the new super-high-speed teletypewriter device developed for the U.S. Army Signal Corps by Kleinschmidt Laboratories. By far the fastest machine of its kind, it stamps out messages at 750 words a minute—ten times faster than standard equipment. Mounted on a radio-equipped jeep, the new typer-puncher is tested as part of a unified mobile communications center.

S

miles
acker.
0-inch
jects
white
De-
bora-
nction
with a
rence
within

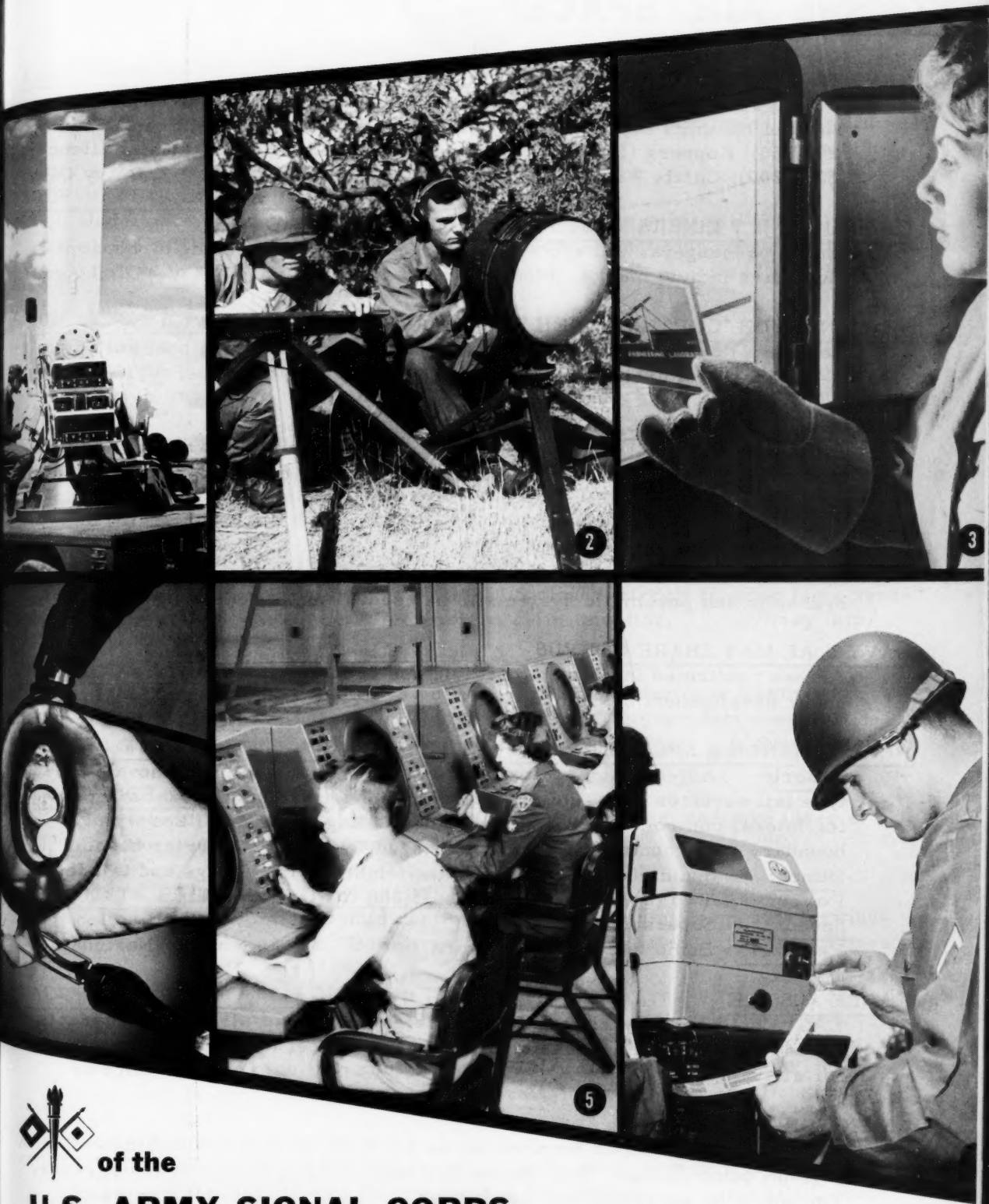
away
ather
entry
Great
easy
e, the
nches

lastic
ed by
alone
dark-
This
chem-
cular
lment

ear-
rcular
e that
second
asure
sages
se in
ly by
atory

speci-
anti-
veop-
n the
infor-
ta to
ed of

high-
Army
fast-
words
ment.
ncher
enter.



of the

U.S. ARMY SIGNAL CORPS

data

AIR SPACE

NAVY BUYS SOUND SUPPRESSORS FOR JETS

to fit against exhaust when engines are tested or run-up prior to take-off. Total of 132 units rep \$1.4-mil invest. Contracts went to Gen Sound Control (\$96,750); Koppers (\$309,216); Intl Air Acoustics (\$309,216); Maxim Silencer (\$286,200); Curtis Wright (\$328,880). ///Navy OPI/

CAB RULES JET LINERS MUST PROVIDE OXY MASKS

for all passengers. All a/c which fly over 25,000 ft including turboprops must have individ masks. Most a/c already so equipped. ///Civil Aero/

NEW ANTI-SUB 'COPTER UNVEILED BY NAVY, SIKORSKY

Designated S61 by Sikorsky, HSS-2 by Navy, craft has flying boat hull, two G-E T58-6 gas turbines mounted side by side above fuselage. ///Navy OPI/

AF TV SATELLITE PROCEEDING RAPIDLY

PIED PIPER, unveiled by DATA in Dec. '57 as in works, is nearing completion. "Seeing-eye" tv satellite is under Lockheed contract, may be ready for launch in six months. ///ARPA/

HYDRAULICS IN SPACE

AF has awarded Ga. Div of Lockheed a contract to study power operated hydraulic and pneumatic systems to be used in space vehicles. ///AF Info/

NAVY & AF MAY SHARE CORVUS

AF has confirmed interest in possible use of Navy air-to-surface CORVUS under development by Temco. ///AF Info/

PERFORMANCE & SPECS ON NAVY NORTH AM A/C A3J-1 VIGILANTE

Descrip: A3J-1 is high, thin swept wing monoplane with all-movable slab type tail surfaces with spoiler/deflectors in lieu of conventional ailerons for lateral control. Wing has droopable leading edges and flaps with boundary layer control. Cockpits arranged in tandem. Carrier based.

Dimen: Span: 50 ft. Length: 70 ft. Height: 20 ft. Wings and tail fold.

Power: Two (2) G-E J79-2. Appx 15,000 lbs thrust each.

Speed: Supersonic

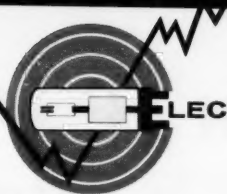
Features: Bomb is ejected rearward. ///North Am/

EAGLE MISSILE

EAGLE will be Navy's new advanced defensive air-to-air bird. Contracts not let yet but Westinghouse slated to get guidance, Northrop looks strong for airframe. ///DATA/

MOON ECHO DETECTION

U. S. has project which bounces waves off moon to detect launchings of ICBMs, bomb firings. Rep. James G. Fulton (R-Pa) says, "It is not radar. You would be surprised how good it is." ///Intl Astro Fed/



ELECTRONICS

COMMUNICATIONS

FAST WAVE AMPLIFIER TUBE BY ZENITH

is said to extend range of mil defense radar as well as range of ICBM and earth satellite track systems. New tube is fast wave parametric amplifier.

///Zenith 0810/

SUBROC PROCEEDING AT GOODYEAR

Underwater guided missile contract at Goodyear to develop SUBROC valued at \$65 million. NavOrd Lab developed, Goodyear building. Principal sub-contractors: Librascope and Kearfott.

///Navy Info/

WIRELESS MICROPHONE

developed in Germany by Telefunken and Sennheiser Elektronik consists of tiny mike and transistorized 4x4x1 in. transmit. Used for loud speaker pick up, may have mil command use in U. S.

///Telefunken/

ROCKET-BOOSTED RADIOSONDE WEATHER UNIT

built by Wright Pat AFB senses future weather 29 miles above earth.

Launched from weather recon plane at 40,000 ft radiosonde rocket climbs to gather upper air data. Convair is contractor.

///ARDC 0820/

NAUTILUS TV SEES IN DARK

Made by G-E for ice warning, NAUTILUS closed-circuit tv equip is so sensitive it sees in dark, shows ice pack on 21-in. monitor.

///Navy Info/

NEW ELECTRONIC HURRICANE LOCATOR

may pinpoint storms four days sooner. Anchored hurricane weather buoys placed in central and west Gulf of Mex transmit weather data every six hours to Navy and Weather Bureau posts for evaluation.

///Navy Info/

NEW DEVICE MAY REPLACE MAGNETIC CORE

New ferrite device developed at Stanford Research Inst can take place of mag cores and complex connections.

///SRI/

CIGARETTE PACK-SIZE TRANSMITTER

called HOPE (Homing Omnidirectional Personal Equip) is special for finding persons lost at sea. Both Army and Navy interested.

///Navy Times/

TACTICAL MICROWAVE EQUIP AN/TXQ-1

developed by BuShips for USMC, new unit is radar data relay, a small, lightweight tactical microwave link. AN/TXQ-1 transmits search radar info via beamed high freq radio waves. AN/TXQ-1 will go into service soon, can be carried in jeeps, landing craft, helicopters.

///BuShips /

AIR TRAFFIC VISUAL DECODER

expected to alleviate air traffic control, undergoing test at Wright Air Develop Cent. ARDC and Burroughs are developing.

///ARDC 0810/

ONSTRUCTION

CONCRETE SERV BLDG AT DALLES DAM, ORE.

Features of bldg incl steel windows, elec op roll steel doors, air con, exhaust sys, fire protect, elec unit heat. Equip to be install incl platform scale, 10 ton bridge crane, air compress & 26 steel clothing lockers. Job IFB 59-49B. Bid opening 20 Oct 58. Plans & specs avail on 22 Sep 58. U. S. Army Eng., 628 Pittock Block, Portland, Ore. ///Army Info/

GRADING & DRAINING IN VA.

Holston James Road near Oriskany 7.9 miles to Secondary Route 707 needs grading, draining, base, other work. Job IFB 136-A. Bid opening 16 Oct 58. Reg Eng., Bu of Pub Roads, Dept Commerce, 1440 Columbia Pike, Arlington, Va. ///Regional Eng/

RUNWAY CONST AT FT KNOX, KY.

Resurfacing, resealing, remarking of runways at Godman Field, Ft. Knox. Work to incl: resurface runway No. 17-35 with asphaltic concrete with appx 7090 tons hot mix asphaltic concrete binder course, 5660 tons hot mix asphaltic concrete wearing course. Mark runways, taxiways, apron. Job IFB AII-15-014-59. Bid opening 1 Oct 58. Cent Purchs Branch, Ft. Knox. ///Knx/

NEW AF FACILITIES IN FAIRFIELD, CALIF.

Construct add facilities at Fairfield AF Station. Job IFB 44-036-59-8B. Bid opening 2 Oct 58. Sacramento Corps of Engineers, Wright Bldg, 1209 8th St, Sacramento, Calif. ///Army Eng/

IRAQ

Develop Board and Ministry of Develop of Republic of Iraq invites qualified firms to tender for eng, supply, erection of fertilizer plant having capacity of 250,000 tons amonia sulphate, 21,000 tons of sulphuric acid annually. Also, supply, deliver, erection of complete plant to produce pulp, paper, and and cardboard from reeds. Tenders submitted in English to Ministry of Development, D. G. Legal Affairs and Contracts, Baghdad by 15 Dec 58 for fertilizer plant, by 3 Jan 59 for paper mill. Interested firms obtain full info from Embassy of Iraq, 2315 Wyoming Ave NW, Wash., D. C. ///Iraq/

NAVY TO CONSTRUCT POLARIS MISSILE ASSY BLDG

Congressional and Presidential approval given for construction of \$10 mil POLARIS missile assembly facility at Nav Ammo Depot, Charleston, S. C. Arc & Eng for new facility being done by Lockwood-Greene Eng of Spartanburg, S. C. ///Navy Info/

CONGRESS APPROPRIATES \$808,622,500 FOR FY 1959 CIVIL WORKS

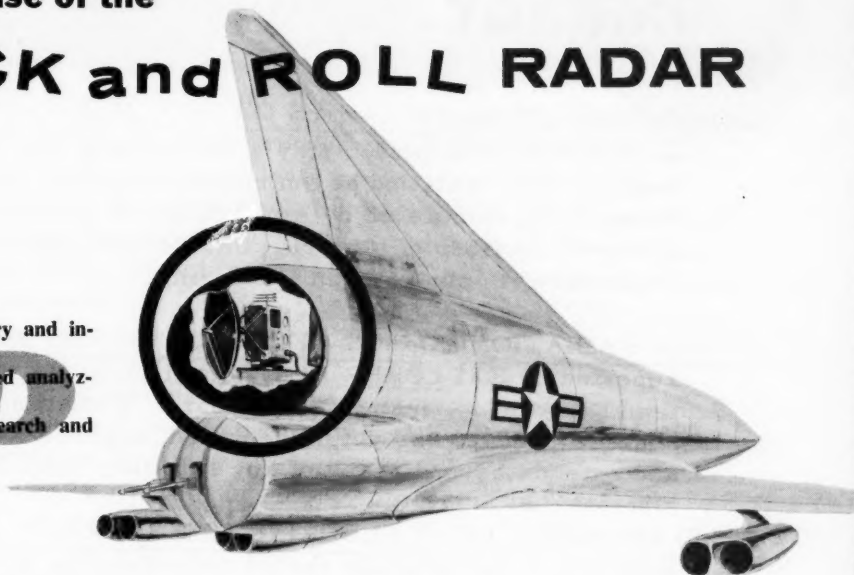
Details of FY 1959 approp for Civ Wks functions of Army Engineers is avail from News Division, Rm 2E757, Pentagon, D. C. ///DOD Info/

Analyzing
for
Automation

... the case of the

ROCK and ROLL RADAR

True story from our files of military and industry problems solved by specialized analyzing equipment of International Research and Development Corporation.



Can radar antennas dance? They can. Also, they can wiggle—not like the third girl from the left in the front row, but with even more devastating results.

Crosley Division of Avco had this problem. They needed to balance fire control radar antennas. Best equipment Crosley had in their shop left them with antenna wiggles of .100" in search rotation. Antenna vibrations were so bad Crosley found they shook the tail of the plane carrying the radar and blurred the image on the scope.

Crosley called IRD. Using an IRD tight-tolerance vibration analyzer which spots troubles and gives corrective directions simultaneously, Crosley achieved tolerances of .0008" in search rotation. This meant an outstanding reduction in radar rocking, better definition,

smoother aircraft flight, and—most important—Crosley got Government acceptance of the equipment.

Crosley said, "IRD solved our problem. The analyzer quickly showed what was wrong and what changes were required to achieve balance. The analyzing caused no slow down in production even though quality was improved."

* * *

IRD analyzing equipment can do the same for you. Users find it saves them money—sometimes millions of dollars, and aids them in getting more business. If you have a manufacturing problem, need to balance moving parts, want improved reliability—let IRD help you.

Write today.

IRD

THE INTERNATIONAL RESEARCH & DEVELOPMENT CORPORATION
P.O. Box 55
Worthington, Ohio

Analyzing
for
Automation

YES!

Send me more information in IRD equipment for machine analyzing.

NAME

JOB TITLE OR MILITARY RANK

COMPANY OR MILITARY UNIT

PRODUCTS MADE/SERVICES RENDERED

ADDRESS

CITY-ZONE-STATE



Model 600



ENERGY

ARMY SOLAR FURNACE

in operation 30 Sep 58, Army's sun furnace can produce temps near 5000 degrees (F). Installed at Quartermaster R&D Command, Natick, Mass., furnace was fabricated by Am Optical, D. S. Kennedy of Cohasset, Mass., Silver-Troy Corp of Newark. Unit has 180 concave rectangular mirrors to concentrate sun rays on focal point. ///Army QM/

COSMIC RADIATION DOSAGE OF 100 ROENTGENS PER HOUR

reported by EXPLORER IV at point 1200 miles over South America — a lethal amount for man in a few hours. Radiation, apparently high-energy charged particles as yet unidentified, begins about 250 miles above earth and extends beyond reach of any satellites launched to date. ///Army/

BELL A/C SAYS LIQUID FLUORINE HIKES ROCKET ENGINE POWER

Bell said it successfully tested rocket engine using liquid fluorine as oxidizer in place of liquid oxygen. Tests show fluorine engine as much as 40 percent more powerful than oxygen power plant. Engine using fluorine was developed in co-op with AF scientists at Wright Development Center at Dayton. ///Bell/

VITRO LAB GETS ION PROPULSION CONTRACT

Ionic Drive, long a dream of rocket experts as interplanetary travel power source, seems nearer to actuality. Recent contract awarded to Vitro for possible applications of high intensity electric arc to ion propulsion, adds to other ionic drive propulsion contracts known to be released by AF. Others are in hands of Giannini, Avco and Rocketdyne. ///Vitro/

U. S. ISSUES REPORT ON "CALIFORNIUM"

First weighable sample — about a quarter of a millionth of a gram — of man made element Californium has been produced. Californium is most explosive element found so far, was originally discovered in thermonuclear test in 1952. It is very rare, so costly and scarce that not enough avail for bomb. Special reactor costing up to \$100 million, however, is under study to produce it. ///Geneva/

NATL SCI FOUNDATION GRANTS \$450,000 FOR BALLOON RESEARCH

on high energy nuclear particles. Tiny nuclear explosions with energies of ten thousand billion electron volts will be captured in blocks of photo film in series of balloon flights made possible by Natl Science Foundation grant. Navy's ONR will coordinate. ///Natl Sci/

AEC INVITES PROPOSALS FOR NUCLEAR PLANT DESIGN

Want to design a nuclear power plant for the Atomic Energy Commission? AEC has invited qualified U. S. firms to submit proposals for performance of preliminary design and engineering studies and cost estimates on nuclear power plants employing three different reactor concepts. ///AEC 0915/

NEW CLOUD SEEDING TECHNIQUE TESTED BY NAV WEATHER SERVICE

Using ordinary carbon black, common product used in printer's ink and auto tires, Navy cloud scientists can create or destroy clouds. Dark carbon black absorbs heat. Dropped into clouds, warmth of carbon black dissipates clouds in from two and a half to twenty minutes. Clouds can be formed by creating differences in temp above or below desired altitude where cloud is to be formed. ///Navy Info/

ARMY PNEUMATIC DUNNAGE TO BE TESTED BY NAVY FOR SHIPS

Tough elastic air pillows, developed to prevent damage to cargo during shipment, developed by Army, Navy now testing. Results of tests in railroad flat cars conducted by Army show great savings over conventional lumber barriers, save 78 percent in labor, 46 percent in materials. ///Army QM/

TOOTHPASTE TUBE TRANSPORT

Liquid cargo — petro, molasses, oil, etc. — being hauled in giant plastic or synthetic rubber tubes. Tubes fit flatcar and truck beds, can be towed by ships. German variety 100 feet long has 20,000 gal cap, sealed air compartments to maintain buoyancy. U. S.-made Neoprene tube holds 3800 gals, rolls into package 2 feet thick. ///Pop Mech/

AF FIREFIGHTERS GET NEW SUITS

Twenty thousand new aluminum-coated suits purchased by AF may revolutionize fire-fight procedures. Suits coated with micro layer of aluminum reflect 90% of radiant heat. Worn over existing suits, new garb lets firefighter get closer to heat center, stay longer. Developed and tested by AF, being made by Minn Mine & Mfg. ///MMM/

NEW CLOSURE

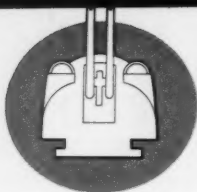
Competition for zipper in new nylon fastener called Velcro. Two strips of new fabric pressed together hold fast. Secret: hooklike bristles in one strip grab and hold tight loop pile in other. Peel apart. Manufacturer claims it is jamproof, unharmed by cleaning, sewing, gluing, dyeing. Anticipate many industrial uses and applications. ///Velcro NY/

NAVY USES NEW PLASTIC

Navy using pipe of Bakelite's new tough polyvinyl chloride compound to wash radioactive fall-out off ships. Bakelite claims QGD-5010 is toughest of all plastics marketed, yet free flowing, produces better surface smoothness. Can be extruded twice as fast as conventional rigid polyvinyl chloride compounds. ///Du Pont/

NEW NOL ROLLING MILL PRODUCES METAL SHEET

Unique horizontal rolling mill at Naval Ord Lab transforms metal powders directly into metal sheets and strips with magnetic properties. ///NOL/



ORDNANCE

IMPROVED MINEFIELD 'SNAKE'

Pushed along by tank, 400-ft-long ground probe carries explosive charges, detonates hidden mines. Special design of free-sliding internal pushing bars transfers pushing force of tank from unique tail section directly thru structure so force acts on nose section only. In this way "snake" is actually pulled in tension. Structure is of extruded aluminum and made by Allison Steel Mfg of Phoenix. ///Army OPI/

NASA TAKES OVER NACA

Natl Aeronautics and Space Admin has absorbed personnel, facilities and research activities of 43-year-old Natl Advisory Committee for Aeronautics, effective 30 Sep 58. ///NASA/

ARMY ENGINEERS TO DESIGN NIKE-ZEUS SUPPORT FACILITIES

Responsibility for design of buildings, structures and utilities supporting Army's NIKE-ZEUS weapons system has been assigned to Mobile, Ala., Dist of U. S. Army Corps of Engineers by M/Gen E. C. Itschner, Chief of Engineers, Dept of Army has announced. ///Army 0923/

EXPLOSIVE FORMING USED BY NORTH AMERICAN TO MAKE TIP TANKS

Placing sheet metal within die, die is filled with water and explosive fired. Resulting force shapes metal with water used as force conductor and shock dampener. ///NAA/

DEATH ON A WIRE

MK-39, Navy's new underwater weapons system, is wire guided torpedo which can be controlled by sub all the way to kill. Developed by Vitro, thread-like wire connects to torpedo, pays out from launching vessel as torpedo speeds thru water. Electrical signals guide. ///Navy Info/

MORE ARMS FOR ARMY

Army will soon begin negotiating with potential contractors for quantity production of new rifles and machine guns. Estimate total value as \$35 million. Rifle is M-14, machine gun is M-60. This announcement of commercial production culminates R&D program which will see whole new family of weapons for Army and Marine troops. ///Army Info/

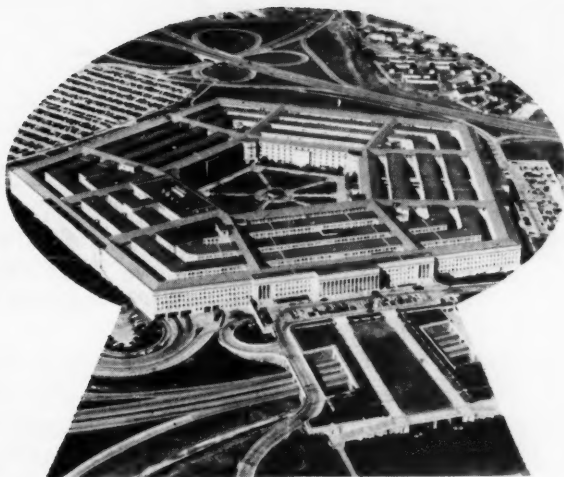
HONEYWELL'S BOMBING SYSTEM ORDERED FOR NAV A4D SKYHAWKS

Minneapolis-Honeywell's low-altitude bomb system (LABS) which is said to allow pinpoint delivery of atom bomb by attack a/c will be installed in Navy A4Ds. Contract is for \$387,335 initially. ///Minn-Honey/

ATOM BOMB SMALL ENOUGH FOR HAND CARRY TO GO TO INFANTRY

New one-tenth kiloton nuclear weapon is launchable from weapon similar to bazooka, to be used by foot soldiers. Currently under test in rush to beat 31 Oct 58 deadline when U. S. nuclear tests halt. ///Army Info/

HERE'S THE KEY TO DOD!



data daily

DATA DAILY from DOD began in May 1957 on a limited basis when the Department of Defense discontinued mailing their releases. The Defense releases are now available at the military information releasing offices in the Pentagon and anyone who wants a copy of each release can pick them up there. But trips into Arlington are both time consuming and expensive, so DOD began providing DATA with a set number of copies of each release for a restricted number of DATA DAILY subscribers. DATA, in turn, mails these releases and maintains a mailing list at no expense to the Government.

DATA DAILY has worked out well for both DOD and the select list of Washington representatives, corporation executives, editors and news men who need to keep ahead of the headlines

and the technical press by having all releases of the Department of Defense on their desks every morning.

DATA DAILY is now expanding scope and service. More copies of more releases have been made available for more DATA Daily subscribers. We can now invite more people to become DATA DAILY clientele.

We invite you to try DATA DAILY service for a month and be convinced of its value.

\$20 per month.

\$200 per year.

No additional charge for postage unless air mail or special delivery is desired. All Data Daily subscribers also receive copies of monthly DATA Magazine at no extra charge.

DATA DAILY • Dupont Circle Building • Washington 6, D. C.



SHIPS

PROPELLER GIVES 'UNLIMITED' SPEEDS

Navy has taken wraps off revolutionary ship propeller enabling vessels to travel at "unlimited" speeds. Known as "super-cavitating" prop, new device takes advantage of cavitation — the formation of vacuum around speeding blades — using resulting vacuum to develop increased speed.

BuShips discloses new prop shaped like screw, no blades. ///ONR 0911/

SUBMARINE GAS DETECTION SYS

New radiation monitoring system designed and built by Material Lab has been installed aboard nuclear-powered subs NAUTILUS and SKATE. Instrument measures minute quantities of radioactive gas in ships' atmosphere, serves as constant guardian for personnel on board. ///Mat Lab/

PREVENTING COLLISIONS AT SEA

Reflection Plotter, new regs, aim at collision reduction. Beginning 1 Jan Coast Guard will require all deck officers to be qualified radar observers. New reflective plotter allows maneuvering board type solutions directly on radar scope, saves time, saves ships. ///MSTS 09/

NEW NAVY SHIPS FOR FY 1959 ON COMPETITIVE BIDS

SecNav Gates announced following new construction will be awarded on competitive basis to qualified yards, but in such manner as to insure best practicable delivery of ships and geographical dispersal among qualified shipyards. Construction to be awarded as follows:

- 7 Guided missile frigates (DLG) including three ships remaining from FY 1958 program.
- 3 Nuclear-powered guided missile submarines (SSGN) including two boats remaining from FY 1958 program.
- 3 Nuclear-powered attack submarines (SSN).
- 5 Guided missile destroyers (DDG).
- 37 Landing craft personnel, large (LCPL).
- 2 Patrol vessels (YP).
- 8 Open lighters (YC).
- 2 Utility landing craft (LCU).
- 4 Large harbor tugs (YTB).
- 2 Submarine repair berthing and messing barges (YRBM).

For complete list of all other shipyard assignments, write Navy Office of Information, Dept D, Washington 25, D. C. ///Navy Info/

SUBMARINE RESCUE BUOY

Three prototype models of new sub rescue buoy developed by Naval Research Lab have been made and comprehensive drawings for use by contractors in manufacture are avail. Buoy has nine hour battery life, sending out distress signals by VHF on 243 Mc. Power source is magnesium silver chloride battery, activated immediately upon contact with sea water.

///Nav Ord Lab/

IMPROVED ARCTIC SLED UNITS

Undergoing tests on Greenland Icecap are three new and improved sled-mounted shelters — called wanigans — developed for personnel aboard tractor-drawn snow trains in frigid climates. Three units in new family: 24-man bunk or mess wanigan; 12-man bunk or mess unit; small 4-man recon unit. Units developed at Fort Belvoir Army R&D Lab. ///Army/

ARMY ALUMINUM COMBAT VEHICLES TRANSPORTED BY AIR

direct from manufacturer to destination at Army establishments thruout continental U. S. and Alaska. First vehicle to use air carry will be 13-man armored personnel carrier with even armor made of aluminum. Built by Food Mach & Chem Corp of San Jose. ///Army 0919/

WILLYS BUILDS FLOOR-MOUNTED ENGINE IN ARMY EXPERIMENT JEEP

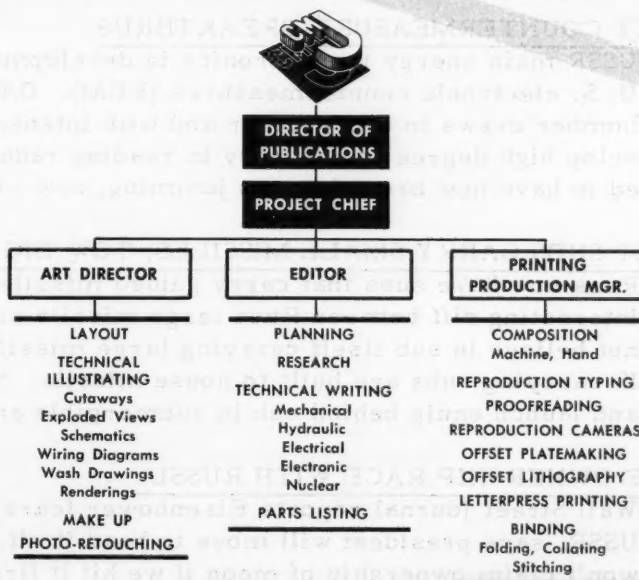
Six persons can ride in personnel carrier Willys Motors is building for Army test use. Curb weight is 1500 lbs and vehicle can carry another 1500 lbs. Seats fold flush into floor to form flat-bed truck. Four-cylinder air-cooled aluminum engine is hidden beneath floor and drives car at 60 mph. ///Willys/

complete TECHNICAL PUBLICATION SERVICE

Here, under one roof, you'll find complete responsibility, clearance and know-how, plus a combination of facilities built up over the past 25 years, that is geared to satisfy all your technical publication requirements.

Technical writers and illustrators together with a staff of skilled graphic art craftsmen not only reduce your problems through their complete understanding but save you time and money as a result of the integrated CMJ team operation.

Call, write or wire:
Director of Publications



ONE P.O. COVERS ALL THESE OPERATIONS

Corydon M. Johnson Co. INC Bethpage, L.I., N.Y. WElls 8-4600

SOVIET R&D

RUSSIAN TRENDS IN AUTOMATION

Kiev Computer, developed by Ukranian Math Inst — combo research computer and control apparat is reputed to be capable of performing 7000 ops/second.

Work being completed on new coal mine which will produce 6 million tons of coal yearly. Coal-cutting machinery, capable of mining 20,000 tons daily, will be remote-controlled from single panel.

Kuibyshev Hydro-Electric Station, of 2,100,000 kilowatts, will be operated by one man at control desk 650 miles away. There will be no workers on station. Direction of facility will be by television.

TRANSLATIONS OF RUSS BOOKS ON SATELLITES, ATOMIC ENGINES

Translations of '58 edition of book on satellites by A. Shternfeld, leading Russ authority, and book written in '57 on application of atomic engines in aviation by G. N. Nesterenko, A. I. Sobolev and Yu. N. Sushkov are now avail thru Dept Commerce, Washington 25, D. C. Write for info.

STANDARD SIZE EQUIP USED IN SOVIET MOONS

Major diff between U. S. and USSR approaches to satellite instrumentation is size of electronic equip. Russians do not need to miniaturize as space is not at premium in their Sputniks.

SOVIET COUNTERMEASURE BREAKTHRUS

USSR main energy in electronics is development of systems to nullify U. S. electronic countermeasures (ECM). DATA has learned Russ train bomber crews in bad weather and with intense radar interference to develop high degree of accuracy in reading radar scope. Also, Russ reported to have new breakthroughs in jamming, new radar, infrared devices.

SOVIET SUBS CARRY SMALL MISSILES, TOW BIG ONES

Russ now have subs that carry guided missiles, can tow ICBMs in trailer. Interesting diff between Russ large missile subs and U. S. is Soviets do not believe in sub itself carrying large missile and launcher. Our POLARIS carrying subs are built to house missile. Soviets said to tow missile and launch equip behind sub in submergible and expendable caboose.

SPACE OWNERSHIP RACE WITH RUSSIA

Wall Street Journal reports Eisenhower fears space ownership race with USSR, says president will move to head it off. Policymakers decide U. S. won't claim ownership of moon if we hit it first. Uncle Sam won't recognize others' claims. State Dept lawyers predict tussle over rights of seeing eye satellites, foresee charges of infringing on natl sovereignty. No comment from Soviets.

data R&D Searchlight

Here are some of our subscribers who can give you data on Research and Development Products and services which they can supply. Call them for data on products and services which they need.

AIR ▲ SPACE

E. J. LeFevre, Administrator
Military Relations
CONVAIR, A DIVISION OF GENERAL DYNAMICS
San Diego, California

D. G. Gilmore, Manager
Manufacturing
CHANCE VOUGHT AIRCRAFT, INC.
Dallas 22, Texas

R. C. Erickson
Public Relations
TEMCO AIRCRAFT CORPORATION
Dallas 22, Texas

COMMUNICATIONS ▲ ELECTRONICS

Fred W. Morris, Jr., Vice President
SATELLITE-KENNEDY, INCORPORATED
P.O. Box 107
Santa Ana, California

John Gilbarie, Vice President, Sales
ADMIRAL CORPORATION
Albee Building
Washington 5, D. C.

John R. Hartness, Vice President
BJ ELECTRONICS
3300 Newport Blvd.
Santa Ana, California

CONSTRUCTION

J. R. Maulcook, District Manager
BALDWIN-LIMA-HAMILTON CORPORATION
Austin-Western Works
Alexandria, Virginia

Felix E. Spurney, Vice President
BUTLER MANUFACTURING COMPANY
Cafritz Building
Washington 6, D. C.

Alva V. Martin, Contract Administrator
DRESSER-IDECO COMPANY
875 Michigan Avenue
Columbus 8, Ohio

ENERGY

T. J. Smith, Mgr., Nuclear Products Div.
AMERICAN ELECTRONICS
9459 W. Jefferson Blvd.
Los Angeles, California

Mr. E. G. Fenrick, High Energy Propellants
OLIN MATHIESON CHEMICAL CORPORATION
1000 Connecticut Avenue
Washington 6, D. C.

DeFrance Clark, New Projects Department
UNION CARBIDE CHEMICAL COMPANY
30 East 42d Street
New York 17, N. Y.

LOGISTICS ▲ MATERIALS

Admiral Joseph L. Kane, Vice President
KENNAMETAL, INCORPORATED
Latrobe
Pennsylvania

William L. O'Donovan, Vice President
CELANESE CORPORATION OF AMERICA
180 Madison Avenue
New York 16, N. Y.

C. D. Smith, Manager
Defense Products Division
FIRESTONE TIRE AND RUBBER COMPANY
Akron, Ohio

ORDNANCE

H. C. Hatch, Washington Representative
DEFENSE OPERATIONS OF CHRYSLER CORPORATION
1700 K St., N.W.
Washington 6, D. C.

John M. Martin, General Manager
Explosives Department
HERCULES POWDER COMPANY
Wilmington 99, Delaware

G. S. Wheaton, Vice President
AMERICAN POTASH AND CHEMICAL CORPORATION
3030 West 6th Street
Los Angeles 54, California

SHIPS

C. A. Rolander
GENERAL DYNAMICS CORP.
1001 Connecticut Ave., N. W.
Washington 6, D. C.

GIBBS CORP.
730 Wyatt Building
Washington 5, D. C.

H. L. Williams
REPUBLIC STEEL CORP.
1438 Republic Building
Cleveland 1, Ohio

TRANSPORTATION

General C. L. Bolte, Spec'l Asst. to Chairman
ACF INDUSTRIES
1625 K St., N.W.
Washington 6, D. C.

J. K. Hampton, Manager, Washington Office
DETROIT DIESEL ENGINE DIVISION OF GMC
1625 Eye Street, NW.
Washington 6, D. C.

J. H. Bolles, Director
Sales and Engineering
DELCO-REMY DIVISION OF GMC
Anderson, Indiana

GENERAL RESEARCH AND DEVELOPMENT

Corydon M. Johnson, President
JOHNSON RESEARCH CORPORATION
Bethpage, Long Island
New York

C. Lincoln Jewett, Washington Manager
ARTHUR D. LITTLE, INCORPORATED
1625 Eye Street, N.W.
Washington 6, D. C.

Admiral J. A. Briggs, Vice President
COOK RESEARCH LABORATORIES
1012 14th Street, N.W.
Washington, D. C.

1958 AFOSR ASTRONAUTICS SYMPOSIUM PAPERS

DATA is now retyping the Thermo-fax copies of the original speeches and is making limited numbers of multilithed reprints of the 13 main papers presented at this Second Annual AFOSR Astronautics Symposium held in Denver, April 28-30, 1958.

Verbatim copies of the 13 main papers presented at the 1958 **Air Force Office of Scientific Research Astronautics Symposium held in Denver, April 28-30, 1958**, are available to DATA readers at a service charge of \$2 per paper, postpaid, or all 13 papers plus a list of the registrants and a complete program of this second annual AFOSR Astronautics Symposium for \$25.

Order by order number, \$2 for each item or \$25 for all 15 listed.

Quantity	DATA Order No.	Title and Speaker
.....	2Astro-1	Opening Remarks—Gen. H. F. Gregory, C.O. AFOSR
SPACE ENVIRONMENT AND VACUUM RESEARCH (Apr. 28, 1958)		
.....	2Astro-2	Experiments from a Lunar Vehicle—Montgomery Johnson, Dir. Nuclear & Physics Lab., Aeronutronic Systems, Inc.
CONTROL AND PROPULSION OF VEHICLES OUTSIDE THE ATMOSPHERE (Apr. 28, 1958)		
.....	2Astro-3	Experimental Studies on Plasma Jet Propulsion—D. F. Howard, Giannini Research Lab.
.....	2Astro-4	(Dinner Address Apr. 28) How High the Moon—Clifford C. Furnas, Chancellor, Univ. of Buffalo.
FOR WHAT PURPOSES SHOULD MANNED SPACE OPERATIONS BE UTILIZED? (Apr. 29, 1958)		
.....	2Astro-5	The Utilization of a Satellite Laboratory for Life Science Studies—Col. Paul Campbell, USAF (MC)
.....	2Astro-6	Assume a Capability for Manned Space Operations—For What Purposes Should This Capability Be Utilized?—A. F. Spilhaus, Inst. of Tech., Univ. of Minn.
JUPITER SATELLITE PROGRAM		
.....	2Astro-7	(Jupiter Satellite Luncheon Address Apr. 29) —Man in Space—W. H. Pickering, Dir. of Jet Propulsion Lab.
DEPARTURE, SPACE NAVIGATION AND RE-ENTRY (Apr. 29, 1958)		
.....	2Astro-8	The Launching of Space Vehicles by Air Breathing Lifting Stages—Antonio Ferri, Head, Dept. of Aero. Engrg. & Appld. Mechs., Lewis Feldman, Proj. Scientist, and Walter Daskin, Sr. Scientist, Gruen Applied Science Lab., Inc.
.....	2Astro-9	The Difference Between Satellite and Ballistic Missile Re-Entry Problems—Frederick Riddell and J. D. Teare, Scientists of AVCO Mfg. Co.
THE EARTH'S MOON (Last Session of Speeches, Apr. 29, 1958)		
.....	2Astro-10	Scientific and Engineering Exploration of the Moon—J. Barnes, Systems Corp. of America.
.....	2Astro-11	How Much Dust on the Moon—Thomas Gold, Harvard College Observatory.
.....	2Astro-12	On the Lunar Dust Layer—Fred L. Whipple, Dir. Smithsonian Astrophysical Observatory, Harvard Univ.
.....	2Astro-13	Lunar Surface Features & Internal Development of the Moon—G. P. Kuiper, Yerkes Observatory.
.....	1Astro-RL	List of Registrants at 1957 Symposium (1958 List will not be available).
.....	2Astro-P	Complete Program of 2nd AFOSR Astronautics Symposium.

Send orders for these papers to DATA, Dupont Circle Building, Washington 6, D. C.

ed
o-
fic
rs
a

le-

ini
an-

D?

Col.
ses
ch.,

H.

—
wis
nen

ob-
Co.

ms

ry.
ro-

P.
le).

R-

R-

R-

R-

Supplemental Charts & Reports Offered to Readers of DATA

NEW THIS MONTH

C-9 U. S. ARMY SIGNAL CORPS— WASHINGTON \$1

Complete block diagram is excellent locator of all key U. S. Army Signal Corps personnel in Washington area. Names and titles along with room numbers, phone extensions and divisional responsibilities are shown.

C-10 U. S. ARMY SIGNAL CORPS— R&D FOR MONMOUTH \$1

Research & Development Laboratories of U. S. Army Signal Corps Labs, Ft. Monmouth, shows all key people in chain of command block diagram, names, titles, room and phone numbers. Administration on flip side.

C-11 U. S. ARMY SIGNAL CORPS— USASSA PHILADELPHIA \$1

Very useful chart of all key people, room numbers, phone extensions, chain of command in U. S. Army Signal Supply Agency in Philadelphia. If you want to sell anything to SigCor, this is key chart.

CURRENT CHARTS

C-1 WHO'S WHO IN OFFICE OF THE SECRETARY OF DEFENSE \$1

Complete block diagram showing functions, relative authority, lines of influence, locations, phone numbers.

C-2R WHO'S WHO IN THE NAVY (Revised July 1958) \$1

Department of the Navy headquarters laid out in detail in a block diagram showing hundreds of key officials, their functions and relationships.

C-3R WHO'S WHO IN THE ARMY (Revised July 1958) \$1

Headquarters offices of the Army in the Pentagon and elsewhere set forth in complete detail including building locations.

C-4 WHO'S WHO IN THE AIR FORCE \$1

Complete chart of the Air Staff divisions. Line and staff officials shown down to the fifth echelon.

C-5 WHO'S WHO IN THE OFFICE OF NAVAL RESEARCH \$1

Departmentalized listing of key personnel with rooms and phones on one side of chart. Block diagram of ONR offices on flip side.

C-6 AIR FORCE INSTALLATIONS MAP \$5

Guide to every major A. F. installation in Continental U. S.

C-7R AIR FORCE OFFICE OF SCIENTIFIC RESEARCH (Revised August 1958) \$1

New version of our popular AFOSR reference. AFOSR has moved to new quarters. We have names of all new personnel, new room numbers, phone extensions.

C-8 WHO'S WHO IN ARPA \$1

Guide to the Advanced Research Projects Agency of the Department of Defense.

CURRENT REPORTS

R-1R AIR FORCE BASES (Revised August 1958) \$1

New bases and name changes are reflected in latest DATA compilation of USAF bases in both continental U. S. and overseas. Perfect supplement for AF map.

R-2R U. S. MISSILES CONTRACTING GUIDE \$1

July 1958 issue of DATA. Full information concerning military contracting offices, prime contractors and principal sub-contractors. Also includes special fact sheet on Advanced Research Projects Agency.

R-3 NAVY BASES \$1

Compilation of 246 shore activities of the U. S. Navy including air stations, communications stations, shipyards, experiment and test stations, laboratories, ordnance plants.

R-4 ARMY BASES \$1

Alphabetical listing and addresses of all Class I, II, III bases of Army within continental U. S. Includes arsenals, experiment stations, supply centers, etc.

datagraf

READER SERVICE

DATA PUBLICATIONS

Dupont Circle Building
Washington 6, D. C.

Gentlemen:

Please send me the items I have checked below.

DATA CHARTS

Order
No. Quantity

C-1..... WHO'S WHO in SECDEF
OFFICE. \$1

C-2R..... WHO'S WHO in NAVY. \$1

C-3R..... WHO'S WHO in ARMY. \$1

C-4..... WHO'S WHO in
AIR FORCE. \$1

C-5..... WHO'S WHO in OFFICE
NAVAL RESEARCH. \$1

C-6..... AF INSTALLATIONS MAP. \$5

C-7R..... WHO'S WHO in AFOSR. \$1

C-8..... ARPA CHART. \$1

C-9..... U. S. ARMY SIGNAL CORPS—
WASHINGTON*. \$1

C-10..... U. S. ARMY SIGNAL CORPS—
R&D FT. MONMOUTH*. \$1

C-11..... U. S. ARMY SIGNAL CORPS—
USASSA PHILADELPHIA. \$1

DATA REPORTS

R-1R..... USAF BASE LIST. \$1

R-2R..... U. S. GUIDED MISSILES
HANDY REFERENCE. \$1

R-3..... NAVY BASES. \$1

R-4..... ARMY BASES. \$1

PAYMENT ENCLOSED ☐

BILL ME ☐

BILL COMPANY ☐

* NEW THIS MONTH

NAME.....

COMPANY.....

ADDRESS.....

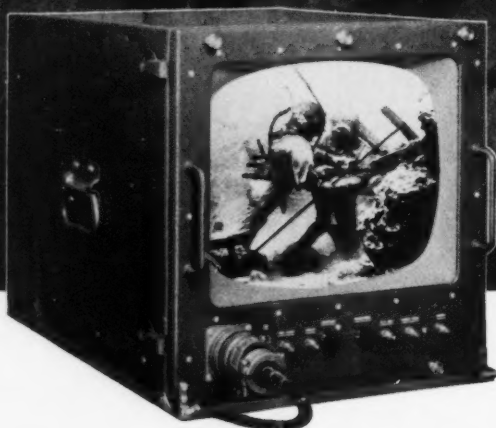
CITY-ZONE-STATE.....

Admiral develops military TV CAMERA with mid-day vision in deep twilight

...on land

...in the air

...even under water



The image orthicon may not be pictured for reasons of security. However, the monitor on which the picture is displayed is commercially available. Designed for the Armed Forces, it is a unit of unsurpassed quality offering superb resolution, extremely good linearity and such unusual features as control of size independent of linearity and the ability to reverse the phase of the signal. Write for detailed description and price.

The human eye is a remarkably sensitive instrument. But it is no match for the image orthicon TV camera developed by Admiral for the Armed Forces. Light from an ordinary match reveals as much to this TV camera as a man with 20/20 vision sees in the light of a 150 watt bulb. Obviously, the armed services will find countless ways to use this sharp-eyed observer for reconnaissance under adverse conditions.

Admiral developed the special circuitry that gives the image orthicon its amazingly keen "eye-sight." For all its extreme sensitivity, there is no penalty in excess bulk or weight.

Admiral has also "packaged" the unit to permit its use not only for land-based and airborne reconnaissance, but *even under water*. Development of the image orthicon again demonstrates Admiral's engineering capabilities in the field of military electronics. Inquiries are invited.

LOOK TO Admiral FOR
RESEARCH • DEVELOPMENT • PRODUCTION
IN THE FIELDS OF: MILITARY TELEVISION
COMMUNICATIONS UHF AND VHF • RADAR
RADAR BEACONS AND IFF • RADIAC
TELEMETERING • DISTANCE MEASURING
MISSILE GUIDANCE • CODERS AND DECODERS
CONSTANT DELAY LINES • TEST EQUIPMENT
ELECTRONIC COUNTER MEASURES

ENGINEERS: The wide scope of work in progress at Admiral creates challenging opportunities in the field of your choice. Write Director of Engineering and Research, Admiral Corporation, Chicago 47, Illinois.

-
e
t
d

-
h
or
o-

10